ABSTRACT OF THE DISCLOSURE

A method of fabricating a magnetic storage medium comprises: forming an underlayer on a heat sink layer; co-sputtering a magnetic material and a thermally insulating nonmagnetic material to form a recording layer on the underlayer, wherein the recording layer includes grains of the magnetic material in a matrix of the thermally insulating nonmagnetic material; and heating the recording layer to align an easy axis of magnetization of the magnetic material in a direction perpendicular to the underlayer. A magnetic storage medium fabricated using the method is also provided.